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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,748	05/12/2005	Koichiro Ono	Q86675	9031

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2100 PENNSYLVANIA AVE. NW
WASHINGTON, DC 20037-3213

EXAMINER

KIRKLAND III, FREDDIE

ART UNIT	PAPER NUMBER
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2855

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/21/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/534,748

Applicant(s)

ONO, KOICHIRO

Examiner

Freddie Kirkland III

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6 and 7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 May 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
- Paper No(s)/Mail Date 5/12/05.
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

FIRST NON-FINAL ACTION

Drawings

Figures 17 and 18 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422

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F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-4 and 6-7 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5,7,10-11,13-16,18-24, 27, 33-34, 36-38, and 41 of copending Application No. 10/535,936 in view of Matsuzaki et al. US Patent 5,877,433.

The co-pending application 10/535,936 claims the same subject matter currently presented in claims 1-4 and 6-7 of this application, but fails to claim wherein the contact angles of the rolling elements are differentiated mutually in respective rows.

Matsuzaki teaches a bearing preload measuring method and apparatus wherein bearings 14a and 14b have different contact angles (col. 13 lines 5-12 and 40-48).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the different contact angles as taught by Matsuzaki in the invention of the co-pending application in order receive a better measurement of load applied to the stationary and rotating rings.

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katano US Patent 6,471,407 in view of Bianco et al. GB 2,382,142 and in view of Matsuzaki et al. US Patent 5,877,433.

With respect to claims 1 and 3-4, Katano teaches a stationary ring (outer race 1); a rotating ring (hub 2) arranged concentrically with the stationary ring (see figure 2); a plurality of rolling elements (10, see figure 2) provided rotatably between stationary-side raceways and rotating-side raceways, which are formed on mutual opposing portions of the stationary ring and the rotating ring in two rows or more respectively, respectively to direct a contact angle in an opposite direction mutually at least between a pair of rows (the contact angles of the rolling elements are different in respective rows, see figure 2); a speed sensor (rpm sensor 5 and/or complex sensor 37) for sensing detecting the speed of the rolling elements; and a calculator for calculating a load applied between the stationary ring and the rotating ring based on sensed signals fed from the revolution speed sensor (col. 9 lines 22-30, the load on the wheel is calculated based on the data

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received from the sensors, the expression that is claimed in claim 3 is also anticipated by the method taught by Katano because Katano states that speed data from the rolling elements is used in order to calculate the load).

But Katano fails to teach at least a pair of revolution speed sensors for sensing revolution speeds of rolling elements, directions of contact angles of which are different mutually, in a pair of rows respectively; and wherein the contact angles of the rolling elements are differentiated mutually in respective rows.

Bianco teaches a wheel bearing assembly incorporating sensing arrangements wherein two speed sensors (28 and 29) detect the rotary speed of the bearing ring (10) and outer ring (11) which rotate by way of rolling elements (balls 12).

Matsuzaki teaches a bearing apparatus wherein rolling elements (balls 14a and 14b) have different contact angles (col.13 lines 6-12 and 40-47).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the two speed sensors as taught by Bianco to use in the method of calculating the load in the invention of Katano in order provide improved assemblies and sensing arrangements (page 1 paragraph 3, Bianco). It would have also been obvious to one of ordinary skill in the art at the time the invention was made to method of having different contact angles for the rolling elements as taught by Matsuzaki in the invention of Katano in order receive a better measurement from the rotating elements with the speed sensors.

Allowable Subject Matter

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Claims 2 and 6-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

Claim 2 is found to be allowable over the prior art because the prior art does not disclose or suggest the claimed " wherein the rotating ring is a hub that fixes a wheel of a car to a rotary-side flange, which is fixed to an outer peripheral surface of an outer end portion in an axial direction, to rotate together with the wheel, and the contact angle of the rolling element in an inner row in the axial direction are set larger than the contact angle of the rolling element in an outer row in the axial direction" in combination with the remaining claim steps as set forth in claim 2.

Claims 6 and 7 are found to be allowable over the prior art because the prior art does not disclose or suggest the claimed " a rotational speed sensor for sensing rotational speed of the rotating ring, wherein the calculator calculates the rotational speed of the rotating ring based on signals fed from the rotational speed sensor, and calculates the load applied between the stationary ring and the rotating ring based on ratios of the revolution speeds of the rolling elements in respective rows to the rotational speed" in combination with the remaining claim steps as set forth in claims 6 and 7.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

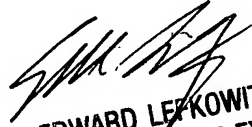
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Freddie Kirkland III whose telephone number is 571-272-2232. The examiner can normally be reached on Monday through Friday 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

FKIII
12/14/2006


EDWARD LEFKOWITZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800